

### ABSTRACT

5 Provided are *in vivo* screening methods to detect and identify substances that affect neuronal viability, and/or prevent neurodegeneration, and/or confer neuroprotective effects. The screening methods utilize recombinant *C. elegans* expressing a detectable marker in neuronal sub-groups and the use of neurotoxins specific to specific neuronal cells. Also provided are methods for identifying modulators of neurotransmitter transporters such as the dopamine transporter. Therefore, the invention provides methods for identifying substances that can be used in the prevention and therapy of neurodegenerative diseases.

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